

REMARKS

Claims 1-12 are all the claims pending in the application. Claims 1 and 6 stand rejected. Applicant thanks the Examiner for indicating that claims 2-5 contain allowable subject matter. By this Amendment, Applicant adds claims 7-12 in order to cover more fully various aspects of the invention as disclosed in the specification.

Applicant thanks the Examiner for considering and initialing the Information Disclosure Statement filed on April 3, 2006. However, JP 2001-520795 was crossed out without explanation. Applicant has reviewed the Image File Wrapper on the USPTO website and confirmed that this reference was filed and is available. This reference is also discussed at page 3 of the specification, satisfying the requirement for a concise explanation of the relevance of a foreign language document. Thus, Applicant respectfully requests that the Examiner confirm that this reference has been considered by returning an initialed form PTO/SB/08 listing only this reference.

Objection to Drawings

The Examiner has objected to the Drawings as allegedly failing to show the “movable iron core including the coil” as required by claim 1. In view of the foregoing, Applicant amends claim 1 for improved clarity regarding the relationship between structural elements. Claim 1, as amended, recites “the movable iron core arranged on sides of the coil”.

The Examiner has objected to the Drawings as allegedly failing to show the “case engagement protrusion” as required by claim 4. Although this language does not appear verbatim in the specification, Applicant notes that at least Figs. 9A and 13C show feature 14b is a protrusion provided in the reset bar that engages the case. Feature 14b is described in the

specification at least on page 30 at paragraph [0045]: “the protrusion 14b of the reset bar 14 conforms to a central portion 1bb of the key-shaped groove 1b of the case 1.” See also page 32 at paragraph [0049]: “the reset bar 14 and the protrusion 14b of the reset bar 14...are located in the central portion 1bb of the groove 1b of the case 1.” Applicant submits that feature 14b is an exemplary embodiment of the “case engagement protrusion” as required by claim 4 and thus the feature is shown in the Drawings.

The Examiner has objected to the Drawings as allegedly failing to show “the indication protrusion, the step, and the tool” as required by claim 5. Although “the indication protrusion” does not appear verbatim in the specification, Applicant notes that at least Figs. 10B, 11B, 12B, 13B, and 14B show feature 10f is a protrusion indicating the state of the relay. The specification describes this feature on page 35 at paragraph [0052]: “the stationary state and the trip state can be indicated in the angled hole 1c by the protrusion 10f provided in the movable contactor support 10.”

Applicant believes the step to which the Examiner objects is also sufficiently illustrated in the Drawings. Applicant notes that at least Figs. 5A, 5B, and 5C show that feature 10f has a step in its upper surface. The meaning of this limitation would be easily understood by one of ordinary skill in the art, and the specification further provides on page 36 at paragraph [0053] that there is “a step provided on the top of the protrusion 10f.”

With respect to the Examiner’s objection to “a tool,” Applicant respectfully submits that a functional description for how to perform a test trip is not a necessary feature of claim 5. Therefore, Applicant amends claim 5 to delete “a tool” as shown in the Amendments section.

In view of the above remarks and amendments, Applicant respectfully traverses all objections to the Drawings and requests the Examiner to withdraw these objections accordingly.

Claim Rejections - 35 U.S.C. § 102

Claims 1 and 6 stand rejected under 35 U.S.C. § 102(b) as allegedly anticipated by Passow (U.S. Patent No. 6,025,766). Applicant respectfully traverses the rejections.

Passow teaches a trip mechanism for preventing damage to electrical components caused by a current overload. Col. 1, lines 6-13. The preferred system in Passow has two sets of electrical contacts -- one set of contacts is normally closed and the other set is normally open. Col. 4, lines 52-54. The normally-closed set allows current to flow to the load in the closed position. Col. 7, lines 19-22, Figs. 1, 2. When the normally-closed set is opened, current flow to the load is stopped. Col. 7, lines 45-48. Also, the normally-open set closes when the normally-closed set is opened, which can "complete a circuit for an indicator light or the like to indicate" that the system is in a tripped state. Col. 7, lines 49-52

Movable contacts in Passow are mounted on an armature and are brought into contact with fixed contacts by an operation of the system. Col. 4, lines 50-60. The armature taught by Passow is mounted on a pivot to move between the two stable contact positions described above. Col. 4, lines 53-56. The armature is moved by magnetic forces, and may be biased toward one position by a spring. Col. 1, lines 18-22, col. 3, lines 6-7.

Magnetic forces are created by permanent magnets sandwiched between magnetic pole pieces within the armature. Fig. 5, lines 28-33. A single coil or two coils wrapped around the permanent magnets generate electromagnetic force to move the armature between its two stable positions. Col. 5, lines 37-50. Power to the coil(s) comes from a solid state overload relay, which can sense an overload and transmit a signal to change the position of the armature in order to stop current flow to the load. Col. 10, lines 49-62.

Passow also teaches various manual, automatic, and ‘trip-free’ operation modes. See col. 2, lines 29-35. The modes can be selected by manipulation of push buttons attached to elements of the trip mechanism.

Turning to the claimed invention, claim 1 requires “an electromagnet unit that performs a trip operation to move a movable iron core from a position of a stationary state to a position of a trip state.” The core is made of iron so that a magnetic circuit can be created in the core. See e.g. dotted arrows in Fig. 4A and description on page 15 at paragraph [0023] of specification.

Passow does not teach at least the “movable iron core” set forth in claim 1. The alleged “iron core” in Passow is an armature, which is composed of “a first magnetic pole piece 62 and a parallel, spaced second magnetic pole piece 64. The pole pieces 62 and 64 sandwich the pivot 16 as well as two permanent magnets 66.” Col. 5, lines 27-30. There is no teaching or suggestion that the armature in Passow is made of iron. Although a magnet could be made of iron, a core of iron is not taught or suggested. Furthermore, the structure taught by Passow would not create the magnetic circuit as set forth in claim 1 at least because there is no disclosure or suggestion of the magnetic pole pieces 62 and 64 being made of iron.

Passow also fails to teach “a movable contactor support that supports a movable contactor composing a part of the usually-closed contact point” as set forth in claim 1. The Examiner has stated that the movable contactor support is shown in Passow by element 24. Office Action, Page 4 at line 2. Applicant respectfully disagrees.

Instead, Passow teaches a “latch lever, generally designated 24 is connected to the armature 18.” Col. 4, lines 61-62. The “armature 18 carries a first set of movable contacts...and a second set of movable contacts,” but the latch lever 24 does not carry or otherwise support the contacts in Passow. It would not be reasonable to interpret the latch lever 24 in Passow to be a

“movable contactor support” because Passow does not teach that the latch lever “supports a movable contactor” as set forth in claim 1. That is, the latch lever does not support a contactor, much less “a movable contactor composing a part of the usually-closed contact point.” Thus, Passow fails to teach or even suggest “a movable contactor support” as set forth in claim 1.

New Claims

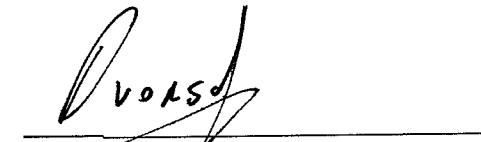
By this Amendment, Applicant adds claims 7-12. These claims are dependent from claim 1 and are patentable at least by virtue of their dependency, as well as for additional features set forth therein. The originally-filed specification supports claim 7 at least on page 11 at paragraph [0015], claims 8 and 9 at least on pages 12-13 at paragraph [0017], claim 10 at least on page 14 at paragraph [0019], claim 11 at least on page 18 at paragraph [0027], and claim 12 at least on page 18 at paragraph [0027].

Conclusion

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880 via EFS payment screen. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,



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